

### REMARKS

The claims appearing in this application were 1 through 9 and 11. Claim 1 has been amended to further define Applicants' invention, Claim 2 has been cancelled without prejudice and Claims 3 and 7 have been amended to be dependent from Claim 1. Therefore, the claims remaining in this application and under consideration are 1, 3 through 9 and 11.

All of the claims have been rejected under 35 U.S.C. 103(a). Claim 1 was so rejected as being unpatentable over Chiu, et al, U.S. 6,326,882 in view of Japanese document 56,030,673A and further in view of Chang, et al., U.S. 5,175,453, Claims 2 through 6 were rejected over the above three references and further in view of Yokomori, et al., U.S. 4,280,063 in addition to official notice taken by the Examiner of the fact that a field effect transistor is a commonly used device for switching loads in or out of the circuit. Claims 7, 8, 9 and 11 were rejected as were Claims 2 through 6 (without the official notice) but further in view of Seener, et al., U.S. 6,125,642. Applicants respectfully traverse each of the foregoing rejections and respectfully request reconsideration of Claims 1, 3 through 9 and 11 in view of the amendments to Claim 1 and the following remarks.

### APPLICANT'S INVENTION

Applicants' invention as defined in amended Claim 1 is a load activation and variable grace period timing system for use with an exhaust fan which includes a monitor which detects when a lamp switch is activated to supply electrical power to the exhaust fan and provides an output signal at a first level representative of the fact that the lamp switch has been activated. Applicants' system includes a timer comprising an analog oscillator which includes means for varying the frequency of the oscillator, with the frequency changes determining the variable grace period and a counter which receives the output signal of the analog oscillator. The output

signal of the monitor is applied to the timer to activate the analog oscillator but to disable the counter so long as the first level output signal is applied. The counter is enabled when the lamp switch is deactivated and the monitor output signal level changes to a second level so that the counter counts the analog oscillator output pulses for a predetermined preset but variable time. A power switch is used for applying electrical power to the load including the exhaust fan when the monitor output signal is at the first level and continues to apply power until the counter reaches the predetermined count at which time power is removed from the load including the exhaust fan.

### THE REJECTION

Claim 1 was rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu, in view of the Japanese document, and further in view of Chang. The Examiner has characterized Chiu as disclosing a load activation and a grace period timing system comprising:

“A monitor (controller 73 light switch) for detecting when a lamp switch is activated and providing an output signal at a first level representative thereof;

A timer receiving said output signal for providing a predetermined amount of time to run the fan after the light switch is turned off and provides periodical cycling of the load (fan) when light is off (abstract).

A power switch for applying electrical power to said load when said monitor output signal is at said first level and continuing until said timer reaches said predetermined time period.”

Applicants respectfully submit that the Examiner has mischaracterized Chiu in that Chiu does not disclose a timer which receives the output signal from the controller 73 to provide a predetermined amount of time to run the fan after the light switch is turned off. The amount of time during which the fan continues to run after the light switch is turned off is determined by the monostable multivibrator 26 which through the utilization of the short and long time delay 211, 212 is controlled so that the output signal thereof has two different lengths of time (one minute short delay, five minutes long delay). See Chiu, column 3, lines 28-31. The output of the monostable multivibrator 26 is applied as one input to the AND gate 210. The other input to the AND gate 210 comes from the sleep timer circuit 4 which has two different time limits (12 hour short sleep timer or 24 hours long sleep timer), column 3, lines 31-34. Thus, as long as the output of the monostable multivibrator 26 and the output of the sleep timer circuit are both applied as input signals to the AND gate 210, the fan will continued to operate. When the state of the monostable multivibrator changes, then the output signal appearing on line J of Figure 5 goes to a low or zero state and no output signal passes through the AND gate 210 thus causing the fan to turn off. Thus, if the short delay is in effect, then the fan will shut off after one minute, whereas, if the long delay is in effect, the fan will shut off after five minutes. No timer of any sort is involved in the Chiu circuit other than the preset period of time as above described.

Applicants note also that Examiner refers to the "periodical cycling of the load (fan) when light is off (abstract) with regard to the teachings of Chiu." Applicants are mystified as to why such a reference is being made since Applicants' device as disclosed in their specification does not contain such periodical cycling and such is clearly not claimed in any of the claims.

Applicants hereby incorporate by reference the discussion of the Chiu reference contained on pages 6 and 7 of the Amendment filed March 29, 2004.

In addition, Examiner states on page 3 of the Office Action that

"Chiu does not disclose a timer comprising a pulse generator and a counter, said counter receiving the output of said pulse generator, said timer receiving said output signal of said monitor to activate said pulse generator but to disable said counter so long as said first level output signal is applied, said counter being enabled when said lamp switch is deactivated and said monitor output signal level changes to a second level so that said counter count, said pulse generator output for a predetermined preset but variable time."

Examiner then references Japanese Document 56,030,673A to supply "a pulse counting timing circuit comprising: a pulse generator and counter wherein said counter being enabled through a counter inhibit input terminal" and then notes that the Japanese document does not disclose a programmable counter. Applicants do recognize that the Japanese document in Figure 2 does disclose a pulse generator 3 which has its output connected to an AND gate 5 the output of which is connected to a counter 10. A square wave generator 4 which produces a low frequency square wave is connected as an additional input to the AND gate 5. The time limit of the timer is changed depending on the duty ratio of the square wave generator 4. Thus, the counter will count when the square wave is applied to the AND gate 5. The "constitution" of the Japanese document states "A counter with an inhibit input terminal may replace a "and" circuit 5 and the counter 10." It is thus evident that Figure 3 is such an embodiment, that is, the counter 11 counts the output pulses of the pulse generator 3 during the time that the output of the square wave generator 4 is applied to the counter. When not applied, the counter is inhibited from counting. Applicants question how the Japanese document renders obvious Applicants' timing system wherein the output signal of the claimed monitor is applied to activate the pulse generator

but to disable the counter so long as the first level output signal is applied but the counter being enabled when the lamp switch is deactivated and the second monitor output signal level changes to a second level so that the counter counts the pulse generator output. Applicants submit that the Japanese document 56,030,673A does not disclose such a structure.

Examiner then uses the Chang reference and states that it discloses "a configurable pulse generator especially for implementing signal delays wherein a fixed frequency oscillator drives a counter to determine, by reaching a pre-determined, usually manually-selected count, a time interval for an output pulse (Col. 2, lines 61-67)." Applicants respectfully submit that Chang discloses a pulse generator circuit which provides a pulse on line 24 generated by the edge detector 12 sensing application of a trigger signal to the terminal 20. The duration of the pulse on the line 24 is then determined by the programmable counter 16 counting the clock pulses from the oscillator 14 which was activated by an output signal from the edge detector 12 on the line 22. When the counter reaches a pre-determined count, it then generates a reset signal which returns the programmable counter 16 to zero and terminates the pulse signal on the line 24. See Col. 4, lines 12-47.

How would one incorporate the circuit of the Japanese document into Chang and the combination of those two into Chiu to provide an operating system as claimed by Applicants?

Examiner merely states that it would have been obvious to one having ordinary skill in the art to modify Chiu by replacing the timer with a timer comprising a pulse generator and a counter and enabling the counter with a counter inhibit signal input. Examiner states "the motivation would be to provide a programmable fan function to set the fan time grace period depending on the size or volume of the enclosed room."

Applicants respectfully submit that under the provisions of 35 U.S.C. Section 103(a) that the claimed invention must be considered as a whole and it must be determined that the differences between the subject matter sought to be patented and the prior art would have been obvious at the time the invention was made to a person having ordinary skill in the art. Examiner has dissected Applicants' claim and then sought a series of references which independently disclose elements of Applicants' invention and then combined those elements as taught by Applicants. Such, it is respectfully submitted, is improper. As the Federal Circuit stated in Ruiz v. A. B. Chance Co., 357 F.3d 1270 (Fed. Cir. 2004) in making the assessment of differences between the prior art and the claimed subject matter Section 103 specifically requires consideration of the claimed invention as a whole. Inventions typically are new combinations of existing principles or features and virtually all inventions are combinations of old elements. Such is the case in the present invention. The "as a whole" instruction in Section 103(a) prevents evaluation of the invention part by part. Without this important requirement an obviousness assessment might successfully break an invention into its component parts, then find a prior art reference corresponding to each component. This line of reasoning would import hindsight into the obviousness determination by using the invention as a roadmap to find its prior art components. Further, this improper method would discount the value of combining various existing features or principles in a new way to achieve a new result, often the essence of the invention.

Contrary to this reasoning, Section 103 requires assessment of the invention as a whole. This "as a whole" assessment of the invention requires a showing that an artisan of ordinary skill in the art at the time of invention confronted by the same problems as the inventor and with no knowledge of the claimed invention would have selected the various elements from the prior art

and combined them in the claimed manner. Section 103 requires some suggestion or motivation in the prior art to make the new combination. In In re Rouffert, 149 F.3d 1350 (Fed. Cir. 1998), the Court of Appeals for the Federal Circuit has expressed skepticism about invoking the knowledge of a skilled artisan to supply the required suggestion or motivation to combine on a scanty record. In re Lee, 277 F.3d 1338 (Fed. Cir. 2002) stating that "this factual question of motivation . . . could not be resolved on subjective belief and unknown authority."

Numerous decisions emphasize that such a combination of reference teachings is improper unless the prior art suggests such a combination. In In re Bond, 910 Fed.2d 831 (Fed. Cir. 1990) it was stated "the PTO erred in rejecting the claimed invention as an obvious combination of the teachings of two prior art references where the prior art provided no teaching, suggestion or incentive supporting the combination." In In re Paulsen, 30 Fed.3d 1475 (Fed. Cir. 1994) the Federal Circuit stated "in reviewing the Board's obviousness conclusions, we have been guided by the well-established principles that the claimed invention must be considered as a whole, multiple cited prior art references must suggest a desirability of being combined, and the references must be viewed without the benefit of hindsight afforded by the disclosure." In Ex Parte Dussaud, 7 USPQ 2d 1818 (Board of Patent Appeals and Interference since 1988), the Board stated "the mere fact that the prior art could be modified in the manner proposed by the Examiner would not have made the modification obvious unless the prior art suggested the desirability of the modification." It was further stated by the Board of Patent Appeals and Interferences in Ex Parte Clapp, 227 USPQ 972 (1985) "to support the conclusion that the claimed combination is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed combination or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in

light of the teachings of the references . . . simplicity and hindsight are not proper criteria for resolving the issue of obviousness.”

The factual inquiry of whether references can be combined must be thorough and searching, it must be based on objective evidence of record. This precedent has been reinforced in myriad decisions and cannot be dispensed with. The case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references to make the specific combination that was made by the Applicant and the Examiner can satisfy this burden of showing obviousness of the combination only by showing some objective teaching in the prior art would lead the person of ordinary skill in the art to combine the relevant teachings of the references. Applicants respectfully submit that with regard to Claim 1, Examiner has taken a portion of the reference Chiu, added to it a part of the teachings from the Japanese document and then has added a pulse generator from Chang to reject Applicants' Claim 1 for obviousness. Where in these prior art references is there any suggestion or motivation for such a combination? Applicants further respectfully submit as above set forth that if these references were combined as suggested by the Examiner, one would still not have the invention as claimed in Claim 1.

Wherein such combination is the claimed analog oscillator, the frequency of which can be varied to determine the grace period? Where is the dual function output signal from the minotors which enables the analog oscillator and at the same time disables the counter? Where is a second level signal from the monitor to enable the counter when the lamp switch is turned off?



Applicants therefore respectfully submit that Claim 1 as amended defines the subject matter which is patentable over Chiu, the Japanese document and Chang. Applicants therefore respectfully request reconsideration of Claim 1 and the issuance of a notice of allowance with respect thereto.

#### **THE REJECTION OF CLAIMS 2 THROUGH 6**

Claims 2 through 6 were also rejected under 35 U.S.C. Section 103(a) as being unpatentable over Chiu, the Japanese document and Chang as combined in the rejection of Claim 1 and further in view of the Yokomori reference U.S. 4, 280,063. As to Claim 2, Examiner combined Chiu, the Japanese document and Chang as above described and then further included Yokomori, stating that it disclosed an electronic timer device comprising a frequency variable oscillating circuit. Claim 2 has been cancelled without prejudice and the limitation of Claim 2 has been incorporated into Claim 1. Thus, the pulse generator as now claimed is an analog oscillator including means for varying the frequency thereof with the frequency changes determining the variable grace period of the system.

With respect to Claims 3, 4, 5 and 6, Examiner made the combination of the four references (Chiu, the Japanese document, Chang and Yokomori) and then further added the official notice with support from page 116 of the text "The Art of Electronics" that "field effect transistor is a commonly used device for switching loads in or out of a circuit."

Claim 3 is dependent from Claim 1 and contains all of the limitations set forth therein as above described and discussed and adds the further limitation that there is included a direct current power supply and that the power switch is a field effect transistor.

Claim 4 is dependent on Claim 3 and adds the further limitation that there is means for coupling the timer to the power switch for deactivating the power switch when the counter reaches the pre-determined time of counting.

Claim 5 is dependent from Claim 4 and adds the additional limitation that the counter generates a signal having one logic level when the lamp switch is activated and a second logic level when the counter reaches the pre-determined time of counting.

Claim 6 is dependent from Claim 5 and adds the additional limitation of means for coupling includes a transistor which conducts in saturation when said signal is at the one logic level to cause the field effect transistor to conduct and which is biased to its non-conducting state when the signal is at its second logic level to cause the field effect transistor to cease conducting.

Applicants respectfully submit that each of these claims when considered as a whole taking all of the elements set forth in Claim 1 and adding the additional limitations set forth in each of the claims as they progressively expand, each being dependent on the preceding claim, results in an invention which defines subject matter which is patentable over the combination of the four references and the official notice invoked by the Examiner. Applicants further incorporate the discussion set forth above with regard to the required findings which must be set forth in order to make a combination of references and in this instance there is a combination of five different references required to reach the obviousness rejection as set forth by Examiner. Again, Applicants respectfully submit that there is no teaching in the prior art of any suggestion or motivation to make such a combination of references and that, at best, such can be found only by utilizing Applicants' teachings, then finding references which disclose element by element those teachings and then to invoke a subjective position of a motivation wherein such is not

found in the prior art teachings. Applicants therefore respectfully submit that Claims 3 through 6 define subject matter which is patentably distinct over Chiu, the Japanese document, Chang, Yokomori and the official notice and respectfully request reconsideration thereof and the issuance of a notice of allowance with respect thereto.

**THE REJECTION OF CLAIMS 7, 8, 9 AND 11**

Claims 7, 8, 9 and 11 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over Chiu, the Japanese document, Chang, Yokomori and the further prior art reference of Seener U.S. 6,125,642. Examiner utilized the reference to Seener as disclosing a switch controlled system for controlling a Triac device for switching AC to a load including an optocoupler (D4) to conduct and generate a firing sequence to switch the triac.

Applicants are mystified as to the application of the disclosure of Seener to the invention as claimed. Seener is directed to an oil level control device for a refrigeration system with a control device being attached between the compressor and the oil supply. Applicants are not attempting to claim as their invention a Triac or an optocoupler for switching alternating current; rather, what Applicants are claiming is the combination of elements which provides a load activation and variable grace period timing system for use with an exhaust fan wherein a monitor detects when a lamp switch is activated to supply electrical power to the exhaust fan and provides a signal at a first level which is representative thereof, timer comprising a pulse generator and a counter with the pulse generator being an analog oscillator including means for varying the frequency thereof, the counter receiving the output of the pulse generator with a first level signal from the monitor activating the pulse generator but disabling the counter until the level of the output signal at the monitor changes to a second level at which time the counter counts the analog oscillator output for a pre-determined preset but variable time and a power

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respectively,

such a combination and that such can be broken down by element, finding a corresponding element in a prior art reference. A combination of each of these elements by reference to Applicants' teachings and Applicants' claim. As above pointed out, such is clearly inappropriate in light of the myriad decisions from the Board of the CAFC.

In view of the foregoing amendments and these remarks, Applicants respectfully submit that Claims 7, 8, 9 and 11 define subject matter which is patentable over the prior art teachings of Chiu, the Japanese document, Chang, Yokomori and Seener and therefore respectfully request reconsideration thereof and the issuance of a notice of allowance with respect thereto.

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